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EASTER LILY MOSAIC

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The mosaic disease of Easter lilies is known by a large number of common names, some of which are "yellows", "stunt", "dwarf", "Bermuda disease" and "running out." The disease has become increasingly important during the past few years and as much as 10 percent loss has occurred in some cases. Few large plantings are fortunate enough to escape without at least a trace of the disease.

SYMPTOMS

Lily mosaic is apparent on the lily plant while it is growing. Any of the plant parts above ground may show the symptoms. As in the case of mosaic diseases in other plants, the normal dark green color in the foliage is replaced by a mottling of light green, dark green or frequently yellowish green. The pattern formed by these various colors is small, so that the individual areas are narrow and irregular. Affected leaves are frequently twisted and dwarfed in addition to having the mottled color. A little later the yellowish areas turn brown, die and dry out. In many cases whole leaves turn brown and die just below the growing tip. The stem of an infected plant is crooked and sometimes twisted, especially in severe cases. The stem may be even shortened so that the leaves are closer together and the whole plant dwarfed.

Affected plants seldom flower, and those that do, produce a few malformed blooms. The flower stems are twisted and weak. The flower, normally smooth and white, is uneven and mottled with green. The petals and sepals are twisted, but they do not bend or flare back as in a normal blossom. The petals separate but do not spread so that the flowers look smaller than those on healthy plants.

Dormant lily bulbs diseased with mosaic cannot be distinguished from healthy bulbs. The disease may gain entrance to the plant at any time prior to the ripening of the top and the plant produced by that bulb the following year will surely be diseased.

HOSTS

So far as known at present, lily mosaic is a disease found only on those plants commonly called "Easter lilies." Most of these are varieties of *Lilium longiflorum*. Mosaic of *Lilium auratum*, while similar in general characteristics, seems to be a distinct disease. Amaryllis, narcissus and some other related plants are affected by mosaic diseases but these have never been transmitted to Easter lilies.

CAUSE OF LILY MOSAIC

As in the case of mosaic diseases of other plants, the cause of lily mosaic is unknown. However, there is an infectious principle called a virus which exists in the sap of the diseased plant and which is able to infect a healthy plant and produce the disease, but it is too small to be seen by the best microscopes available. This infectious principle or virus penetrates to all parts of an infected plant even though the symptoms are apparent only on the growth made after infection occurred.

How this infectious principle gets into a healthy lily is not known. Some other mosaics are spread by contact, while many are carried by insects, usually of the sucking type like leaf-hoppers and aphids. As yet, no insect has been found to carry lily mosaic, but future investigators may incriminate one, as it is known that the disease will spread to healthy plants, if diseased plants are allowed to remain in the bed with them. Eventually all the plants in a bed will contract mosaic, if the diseased plants are not removed as soon as they appear. As far as known now, the disease is spread only while the plants are growing. Mosaic is not known to live over in the soil nor spread while the bulbs are dormant. Nevertheless, dormant bulbs may harbor the disease and present typical symptoms on the growth that they produce after the resting period.

CONTROL

Since this disease is systemic, that is, exists in the sap of the plants, fungicidal sprays or dusts are of no benefit. Diseased plants should be removed just as soon as they can be detected. Such diseased plants are sources of infection for the surrounding healthy ones and should be removed promptly and destroyed.

While fungicidal sprays are of no value in combatting mosaic, it is highly desirable that insecticides be applied promptly whenever insects appear. These may be the carriers of the mosaic diseases in addition to causing damage of themselves.

No chemical, heat or other type of treatment can be given lily bulbs affected by mosaic that will eliminate the disease. Mosaic must and can be conquered by the prompt removal and destruction of the affected plants from the growing field.

The control of mosaic diseases of *Lilium auratum*, narcissus, amaryllis, etc., is accomplished in the same manner.